

$$\text{الف } 27^\circ = (n) \text{ Rad} \rightarrow \frac{27}{180} = \frac{\text{Rad}}{\pi} = 20 \text{ Rad} = 3\pi \rightarrow \text{Rad} = \frac{3\pi}{20} \quad (1)$$

$$\text{ب) } \frac{120}{180} = \frac{\text{Rad}}{\pi} \rightarrow 34 \text{ Rad} = 20\pi \rightarrow \text{Rad} = \frac{20\pi}{34}$$

$$\text{ج) } \frac{5\pi}{12} = \frac{D}{180} \rightarrow 110(D) = 12D \rightarrow D = 75^\circ$$

$$\text{د) } \frac{4\pi}{9} = \frac{D}{180} \rightarrow 110(F) \rightarrow 9D \rightarrow D = 110$$

$$\frac{120a}{9} = \frac{D}{180} \rightarrow 11 \times 120a = D \quad D = 120a^\circ \quad (2)$$

$$\frac{a\pi}{1} = \frac{D}{180} \rightarrow 11D = 180a \rightarrow D = 22.5a^\circ$$

$$22.5a^\circ + 120a^\circ + 10a^\circ = 180a^\circ \rightarrow 152.5a = 180 \rightarrow a = 1.2$$

$$\text{الف) } \frac{1}{2} \times \frac{\sqrt{3}}{2} - \frac{\sqrt{3}}{2} \times \frac{1}{2} - 1 + 2 = 1 \quad (3)$$

$$\text{ب) } \frac{\left(\frac{1}{\sqrt{3}}\right)^2 + 1 + (\sqrt{3})^2}{\sqrt{3} - \frac{1}{\sqrt{3}}} = \frac{\frac{1}{3} + 1 + 3}{\frac{3-1}{\sqrt{3}}} = \frac{\frac{13}{3}}{\frac{2}{\sqrt{3}}} = \frac{13\sqrt{3}}{6}$$

$$-\frac{1}{2} \times \frac{1}{2} + \frac{\sqrt{3}}{2} \times \frac{\sqrt{3}}{2} = -\frac{1}{4} + \frac{3}{4} = \frac{2}{4} = \frac{1}{2} = \sin^2 A \quad (4)$$

$$20 \quad 1 + \cot^2 \theta = \frac{1}{\sin^2 \theta} \rightarrow 1 + \cot^2 \theta = \frac{1}{\frac{1}{4}} \rightarrow \cot^2 \theta = 1 \quad \cot \theta = 1 \quad \tan \theta = 1$$

